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EXAMINER	
CALANDRA, ANTHONY J	

ART UNIT	PAPER NUMBER
1791	

NOTIFICATION DATE	DELIVERY MODE
02/20/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/591,350	KOGA ET AL.	
	Examiner	Art Unit	
	ANTHONY J. CALANDRA	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 November2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Office Action

1. The communication dated 11/24/2008 has been entered and fully considered.

2. Claims 1 and 4 have been amended. Claims 2, 3, and 5 have been canceled. Claims 1 and 4 are currently pending.

Specification

3. In light of amendment the objection to the title has been withdrawn.

Drawings

4. In light of the newly submitted drawings the objection has been withdrawn.

Response to Amendment

5. The declaration under 37 CFR 1.132 filed 11/24/08 is insufficient to overcome the rejection of claim 1 and 4 based upon CHINA and KOGA as set forth in the last Office action because:

In the 11/24/2008 declaration the applicant argues that the PASS of CHINA is different then that of the instant claims. The applicant states when the method of CHINA was used to create the PASS an acidic pH *was not* obtainable. Applicant states that when adding sulfuric acid to the sodium silicate to reduce the pH of the aqueous solution to 10 or less the silica sol gelled and acidic sol could not be obtained. As such applicant argues that the silica sol of CHINA is different then that of the instant claim based of the limitation of a pH of 1.5 to 2.5.

The declaration is deficient for the following reasons: The applicant did not disclose the concentration of the sodium silicate used when performing the experiment. The applicant does not disclose any data of the experiment what so ever or the data for comparison to the instant method. A higher concentration of sodium silicate would be more likely to form a gel. The

PASS of CHINA has a final silicon content of 0.5%. It is not clear from the applicant's declaration what concentration of silicon was present in the declaration experiments.

It is clear from the disclosure of CHINA that the mixture of H2SO4 and sodium silicate is in fact acidic. CHINA states "After standing for a certain period of time to allow ***silicic acid*** to have a certain degree of polymerization". An acid cannot exist in an alkaline condition. Therefore the method of CHINA must produce a composition that is acidic which directly contradicts the applicant's assertion. Further, CHINA does not state that gel formation has occurred and if it had occurred the PASS of CHINA would not be effective. CHINA does disclose aging. If the formulation was unstable and gel formation had occurred ageing could not occur as evidenced by KOGA [0027 last sentence].

Finally the applicant does not address KOGA in the declaration. The applicant's arguments are moot when CHINA is combined with KOGA. KOGA teaches methods for producing the silica sol of the first step of CHINA effectively. KOGA discloses that a silica sol can be produced by the aqueous reaction of sodium silicate and a mineral acid [0021]. KOGA discloses that sulfuric acid is especially preferable [0028]. The method of KOGA prevents gel formation [0027] and has an acidic pH which overlaps with the instant claimed range. The silica sol of KOGA can be stored for long periods of time [0104].

Response to Arguments

6. Applicant's arguments filed 11/24/2008 have been fully considered but they are not persuasive.

Applicant argues as per the 11/24/08 declaration that gelation occurs when following the process of CHINA to produce the silica sol that is mixed with the aluminum compound and therefore the silica sol compound could not possibly be acidic..

Applicant's declaration is insufficient because of the reasons stated above including but not limited to not teaching the concentration of the silica used.

Applicant argues that since the product of CHINA is in allegedly gel form it is not a proper product for treating papermaking waste water.

Applicant argues that since CHINA is in gel form it cannot treat wastewater. CHINA does not disclose that the silica sol forms a gel. CHINA does disclose aging. If the formulation was unstable and gel formation had occurred ageing could not occur as evidenced by KOGA [0027 last sentence].

Additionally, CHINA does treat papermaking waste waster [CHINA pg. 2 Table 2]. Therefore since gels cannot treat wastewater and CHINA does treat wastewater, it is clear that CHINA does not form a gel.

Applicant argues that the process of CHINA does not produce an acidic silica-aluminum based inorganic polymer. Instead the silica sol produced by CHINA is allegedly alkaline, therefore it follows that the inorganic polymer flocculent must also be alkaline.

CHINA states "After standing for a certain period of time to allow ***silicic acid*** to have a certain degree of polymerization". An acid cannot exist in an alkaline condition. Therefore the method of CHINA must produce a composition that is acidic which directly contradicts the applicant's assertion. As such, the second part of the applicant's argument is unsound because the premise of having an alkaline silica sol is untrue.

Applicant argues that the examiner makes the false assumption that the skilled artisan would recognize the equivalence between these two types of flocculants in the combination of TAKAHASI in view of CHINA. Applicant argues that the flocculent of CHINA is necessarily alkaline and one of ordinary skill in the art would not recognize that the acidic flocculent of TAKAHASI could be substitute for the alleged alkaline flocculent of CHINA.

CHINA states "After standing for a certain period of time to allow ***silicic acid*** to have a certain degree of polymerization". An acid cannot exist in an alkaline condition. Therefore the method of CHINA must produce a composition that is acidic which directly contradicts the applicant's assertion. As such, the second part of the applicant's argument is unsound because the premise of having an alkaline silica sol is untrue.

Applicant argues that changing the sequence of the addition of steps [MPEP 2144.04 (IV) (C)] is not the same as combining the addition of two steps into one step. Therefore the applicant argues that the examiner has not supported a prima facie case of obviousness. Applicant further argues that the flocculent of CHINA is alkaline.

A sequence is a number of steps happening over a period of time. The sequence is changed by having the steps occur at different times then at the same time. In the prior art compound A and B are mixed together and then added to wastewater, therefore A and B are added simultaneously. In the claim, A is added first and then B is added. Therefore the obvious change being made changing the sequence from simultaneous addition to a first addition and then a second addition.

In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) (Selection of any order of mixing ingredients is prima facie obvious)

The examiner fails to see the dichotomy that the applicant is trying to point out or why said changing of steps would be non-obvious to a person or ordinary skill in the art. As to the argument that the flocculent of CHINA is alkaline, please see above for the examiners response.

Applicant argues that it would not be obvious to optimize the pH of the silica sol of CHINA. Applicant argues that CHINA only teaches an alkaline silica sol and that the sol would gel if applicant argues that there is no teaching in CHINA that pH is a critical value. Applicant further argues that there is no guidance towards the final result to which the silica sol pH may be optimized.

- CHINA states "After standing for a certain period of time to allow ***silicic acid*** to have a certain degree of polymerization". Therefore it is known that the silica sol is acidic.
- Applicant argued that if a gel is formed the flocculent cannot be used to treat waste water [arguments pg. 7 last paragraph].

- The silica sol of CHINA is acidic and is combined with aluminum sulfate and is used for wastewater [CHINA pg. 2 Table 2]. Therefore it can be inferred the sol has not gelled.
- CHINA teaches that the pH is adjusted. Further it is clear from the above that the pH is adjusted towards the acidic range. Finally, *pH is a known critical value* to a person of ordinary skill in the art of flocculants and would be optimized through routine experimentation to affect the flocculation properties. This fact is asserted by the applicant "One of ordinary skill in the art would readily recognize, especially in this *pH-sensitive art*, that the alkaline flocculant of CHINA is neither interchangeable with nor equivalent to the acidic flocculant of Takahashi".

Applicant argues that the examiner cannot rely on KOGA to further supplement the teachings of CHINA. Applicant argues that they are not analogous arts as KOGA teaches water treatment and CHINA teaches wastewater treatment.

KOGA does in fact disclose wastewater [abstract].

Applicant further argues that the flocculants of KOGA and CHINA are different and one skilled in the art would not make a substitution.

The examiner does not make a substitution with KOGA. KOGA is used for teachings on how to produce a stable silica sol and/or the criticality of pH while creating a stable sol. CHINA discloses a PASS flocculent and to make the PASS a silica sol must first be produced. The details of creating the silica sol are sparse, however it is known from CHINA that sulfuric acid, sodium silicate are used to make the silica sol and that the silica sol is acidic. KOGA supplies additional teachings of how to produce the silica sol such that it would be stable. Therefore it would have been prima facie obvious to use a known technique such as adjusting an inorganic

silica polymers pH and concentration to obtain a predictable result such as better storage stability, ease of handling, and viscosity change. A person of ordinary would be motivated to use the techniques of KOGA to obtain better storage stability, ease of handling, and viscosity change of the silica sol that is used to make the PASS of CHINA.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP5302291 TAKAHASHI, hereinafter TAKAHASHI, in view of "*Study on the treatment of papermaking wastewater by polymeric aluminum sulfate silicate*", hereinafter CHINA and if necessary, US Publication 2003/0019815 KOGA et al., hereinafter KOGA.

TAKAHASHI discloses adding an inorganic polymer to a waste liquor of pulp at a pH of 4 to 6. Subsequent to adding the inorganic polymer the pH is adjusted to a pH of 5-7.0 and then an organic polymer is added [eps@cenet English translation]. TAKAHASHI does not (appear to) disclose adding the silicon-aluminum polymer as the instant claim.

CHINA discloses treating a papermaking wastewater with a silica-aluminum flocculant (PASS) (*A method for treating papermaking waste water, which comprises having a silica-aluminum based inorganic polymer* [section 1.2 and 2.1]). CHINA discloses the flocculant having a SiO2 to Al ratio of 1:1 which is equivalent to a 0.47:1 Si to Al ratio (*flocculant having a Si/Al molar ratio of 0.2 to 1.5* [section 2.2; 1 SiO2* MW Si/MW SiO2; 1 * 28/60 = 0.46 Si: 1 Al]). CHINA discloses adding the flocculant to a wastewater with a pH of 7.32 (*to a pH wastewater of contained in papermaking waste water having a pH or adjusted pH of 5 to 14 such that the concentration of the inorganic polymer* [section 2.1]). CHINA discloses adding 100 mg/L based on SiO2, since CHINA discloses a 1:1 Al:SiO2 ratio, the Al concentration is also 100 g/L which falls within the instant claimed range and discloses that the flocculent works best

in the control range of 5-11 (*flocculant becomes 1 to 250 (mg-Al/L) in terms of aluminum to control the pH of the papermaking waste water to 5 to 8* [Table 1 and section 2.3]).

At the time of the invention it would have been *prima facie* obvious to substitute the inorganic metal polymer of TAKAHASHI for the inorganic polymer of CHINA. A person of ordinary skill in the art would expect both polymers to cause flocculation. It is *prima facie* obvious to substitute one known component for another with expectation of yielding predictable results.

CHINA states that the H2SO4 is added to adjust a pH value and that sodium silicate is diluted to reach a certain solution. CHINA does not explicitly disclose the adjusted pH. CHINA does state that silicic acid is formed which implies an acidic pH. Also as gellation does not occur this implies that the pH is low enough not to cause gellation of the silica sol. CHINA discloses that the silicon content of the PASS is 0.5 % by weight silicon, this is equivalent to about 5 grams/L which abuts the instant claimed range [section 1.2]. By mentioning these two variables it is clear that CHINA recognizes them both as result effective variables. Therefore at the time of the invention it would have been *prima facie* obvious to optimize both the concentration and the pH of the solution [see e.g. MPEP 2144.05 (II) (B) Optimization of ranges and result effective variables].

Alternatively, should the applicant be unconvinced, a SiO2 concentration of 5 to 25 g/L and a pH of 1.5 to 2.5 would have been obvious in light of KOGA. KOGA discloses that the SiO2 concentration of 10 to 30 g/L in a silica sol [0048] and a pH of 1 to 3 in a silica sol [0049]. CHINA requires that a silica sol be made before mixing the silica sol with the aluminum

compound to make PASS. A person of ordinary skill would look to KOGA for information on how to prepare the silica sol of CHINA that is mixed with the aluminum compound.

While KOGA discloses silica sol inorganic polymers and the instant claims disclose a silica-sol aluminum mixture inorganic polymer, it is *prima facie* obvious to use a known technique such as adjusting an inorganic polymers pH and concentration to obtain a predictable result such as better storage stability, ease of handling, and viscosity change for the silica sol that is being combined with aluminum sulfate. At the time of the invention it would have been obvious to a person of ordinary skill in the art to apply the teachings of KOGA to obtain the benefits of a stable silica-aluminum inorganic polymer that does not gel up.

Alternatively, a person of ordinary skill in the art could look to KOGA for teachings that suggest both pH and concentration are result effective variables which affect the properties of inorganic polymers such as silica sol. A person of ordinary skill in the art would therefore be motivated to optimize both of these parameters as they are shown to have an affect on gelling, storage, and viscosity [0006, 0007 and 0045].

8. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over "*Study on the treatment of papermaking wastewater by polymeric aluminum sulfate silicate*", hereinafter CHINA and WO 03/029151 A1 FRUH et al, hereinafter FRUH, and, if necessary, US Publication 2003/0019815 KOGA et al., hereinafter KOGA.

Examiner has used U.S. Patent 6,929,759 as the English Language Equivalent of FRUH and will refer to this document.

As for claim 1, CHINA discloses treating a papermaking wastewater with a silica-aluminum flocculant (PASS) (*A method for treating papermaking waste water, which comprises having a silica-aluminum based inorganic polymer* [section 1.2 and 2.1]). CHINA discloses the flocculant having a SiO2 to Al ratio of 1:1 which is equivalent to a 0.47:1 Si to Al ratio (*flocculant having a Si/Al molar ratio of 0.2 to 1.5* [section 2.2; 1 SiO2* MW Si/MW SiO2; 1 * 28/60 = 0.46 Si : 1 Al]). CHINA discloses adding the flocculant to a wastewater with a pH of 7.32 (*to a pH wastewater of contained in papermaking waste water having a pH or adjusted pH of 5 to 14 such that the concentration of the inorganic polymer* [section 2.1]). CHINA discloses adding 100 mg/L based on SiO2, since CHINA discloses a 1:1 Al:SiO2 ratio, the Al concentration is also 100 g/L which falls within the instant claimed range and discloses that the flocculent works best in the control range of 5-11 (*flocculant becomes 1 to 250 (mg-Al/L) in terms of aluminum to control the pH of the papermaking waste water to 5 to 8* [Table 1 and section 2.3]).

CHINA does not disclose adding an additional organic polymer to the wastewater. FRUH discloses that additional organic polymers can be combined with inorganic polymers such as poly-aluminum silicate sulphate [column 4 lines 27-68]. At the time of the invention it would have been obvious to a person of ordinary skill in the art to add an additional organic polymer to the silicon-aluminum inorganic polymer of CHINA to clarify the water. A person of ordinary skill in the art would be motivated by the fact that the combined organic/inorganic polymer produced excellent results, including large sludge flakes, effectiveness during cold periods, low concentration requirement, and good BOD, COD elimination [column 6 lines 1 -47]. Further, in addition to the TSM rationalization, it is *prima facie* obvious to combine two known components

intended for the same purpose [see e.g. MPEP 2144.06 (I) Combining Equivalents Known for the Same Purpose].

FRUTH discloses that the inorganic/organic polymers are mixed together and then added to the wastewater. The instant claim states that the inorganic polymer is added first and then the organic polymer is added. However, at the time of the invention it would have been prima facie obvious to change the sequence of the addition of ingredients, absence evidence off unexpected results [see e.g. MPEP 2144.04 (IV) (C) Changes in Sequence of Adding Ingredients].

FRUH discloses that for optimum storage stability the pH should be 0.3 to 4, which overlaps with the instant claimed range [column 5 lines 1-5]. However, this is for a combination of different inorganic/organic polymers and not the silica-aluminum inorganic polymer alone. CHINA states that the H2SO4 is added to adjust a pH value and that sodium silicate is diluted to reach a certain solution. CHINA does not explicitly disclose the adjusted pH. CHINA does state that silicic acid is formed which implies an acidic pH. Also as gellation does not occur this implies that the pH is low enough not to cause gellation of the silica sol. CHINA discloses that the silicon content of the PASS is 0.5 % by weight silicon, this is equivalent to about 5 grams/L which abuts the instant claimed range [section 1.2]. By mentioning these two variables it is clear that CHINA recognizes them both as result effective variables. FRUH recognizes that pH has an important effect on stability. Therefore at the time of the invention it would have been *prima facie* obvious to optimize both the concentration and the pH of the solution [see e.g. MPEP 2144.05 (II) (B) Optimization of ranges and result effective variables].

Alternatively, should the applicant be unconvinced, a SiO2 concentration of 5 to 25 g/L and a pH of 1.5 to 2.5 would have been obvious in light of KOGA. KOGA discloses that the

SiO2 concentration of 10 to 30 g/L in a silica sol [0048] and a pH of 1 to 3 in a silica sol [0049]. CHINA requires that a silica sol be made before mixing the silica sol with the aluminum compound to make PASS. A person of ordinary skill would look to KOGA for information on how to prepare the silica sol of CHINA that is mixed with the aluminum compound.

While KOGA discloses silica sol inorganic polymers and the instant claims disclose a silica-sol aluminum mixture inorganic polymer, it is *prima facie* obvious to use a known technique such as adjusting an inorganic polymers pH and concentration to obtain a predictable result such as better storage stability, ease of handling, and viscosity change for the silica sol that is being combined with aluminum sulfate. At the time of the invention it would have been obvious to a person of ordinary skill in the art to apply the teachings of KOGA to obtain the benefits of a stable silica-aluminum inorganic polymer that does not gel up.

Alternatively, a person of ordinary skill in the art could look to KOGA for teachings that suggest both pH and concentration are result effective variables which affect the properties of inorganic polymers such as silica sol. A person of ordinary skill in the art would therefore be motivated to optimize both of these parameters as they are shown to have an effect on gelling, storage, and viscosity [0006, 0007 and 0045].

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over "*Study on the treatment of papermaking wastewater by polymeric aluminum sulfate silicate*", hereinafter CHINA and, if necessary, US Publication 2003/0019815 KOGA et al., hereinafter KOGA.

CHINA discloses treating sodium silicate solution with sulfuric acid which is a halogen free acid [section 1.2]. Aluminum sulfate is then added to produce a silica-aluminum based inorganic flocculant, PASS [section 1.2].

CHINA states that the H2SO4 is added to adjust a pH value and that sodium silicate is diluted to reach a certain solution. CHINA does not explicitly disclose the adjusted pH. CHINA does state that silicic acid is formed which implies an acidic pH. Also as gellation does not occur this implies that the pH is low enough not to cause gellation of the silica sol. CHINA discloses that the silicon content of the PASS is 0.5 % by weight silicon, this is equivalent to about 5 grams/L which abuts the instant claimed range [section 1.2]. By mentioning these two variables it is clear that CHINA recognizes them both as result effective variables. Therefore at the time of the invention it would have been *prima facie* obvious to optimize both the concentration and the pH of the solution [see e.g. MPEP 2144.05 (II) (B) Optimization of ranges and result effective variables].

Alternatively, should the applicant be unconvinced, a SiO2 concentration of 5 to 25 g/L and a pH of 1.5 to 2.5 would have been obvious in light of KOGA. KOGA discloses that the SiO2 concentration of 10 to 30 g/L in a silica sol [0048] and a pH of 1 to 3 in a silica sol [0049]. CHINA requires that a silica sol be made before mixing the silica sol with the aluminum compound to make PASS. A person of ordinary skill would look to KOGA for information on how to prepare the silica sol of CHINA that is mixed with the aluminum compound.

While KOGA discloses silica sol inorganic polymers and the instant claims disclose a silica-sol aluminum mixture inorganic polymer, it is *prima facie* obvious to use a known technique such as adjusting an inorganic polymers pH and concentration to obtain a predictable

result such as better storage stability, ease of handling, and viscosity change for the silica sol that is being combined with aluminum sulfate. At the time of the invention it would have been obvious to a person of ordinary skill in the art to apply the teachings of KOGA to obtain the benefits of a stable silica-aluminum inorganic polymer that does not gel up.

Alternatively, a person of ordinary skill in the art could look to KOGA for teachings that suggest both pH and concentration are result effective variables which affect the properties of inorganic polymers such as silica sol. A person of ordinary skill in the art would therefore be motivated to optimize both of these parameters as they are shown to have an affect on gelling, storage, and viscosity [0006, 0007 and 0045].

Alternatively, a person of ordinary skill in the art could look to KOGA for teachings that suggest both pH and concentration are result effective variables which affect the properties of inorganic polymers such as silica sol. A person of ordinary skill in the art would therefore be motivated to optimize both of these parameters as they are shown to have an effect on gelling, storage, and viscosity [0006, 0007 and 0045].

The silica sol produced in step (a) ***could*** be used as a retention aid. Examiner notes that this step is both optional.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. CALANDRA whose telephone number is (571) 270-5124. The examiner can normally be reached on Monday through Thursday, 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/

Supervisory Patent Examiner, Art Unit 1791

/AJC/